CLAIMS

1. (Original) A method of growing a group III nitride crystal, comprising: growing a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved; and including, in the solution, a material which increases solubility of the nitrogen into the solution.

2. (Original) The method as claimed in claim 1, wherein the material is selected from a group consisting of Li, Ca and alkaline earth metals.

3. (Original) The method as claimed in claim 2, wherein the material is Li, and the Li is included in the solution by adding a nitrogen compound to the solution.

4. (Original) The method as claimed in claim 1, wherein the group III nitride crystal is grown on a seed crystal.

5. (Original) The method as claimed in claim 1, wherein the group III nitride crystal which is grown is plate-shaped or columnar.

6. (Original) A method of growing a group III nitride crystal, comprising: preparing, as a solvent, a solution which includes an alkaline metal; and growing a group III nitride crystal by fusing a group III nitride into the solution and recrystallizing the group III nitride.

7. (Original) The method as claimed in claim 6, comprising: setting a concentration of the group III nitride within the solution to become greater than or equal to a saturated concentration, so as to recrystallize the group III nitride and grow the group III nitride crystal.

8. (Original) The method as claimed in claim 7, wherein the concentration of the group III nitride within the solution is set to become greater than or equal to the saturated concentration by decreasing a temperature of the solution.

9. (Original) The method as claimed in claim 6, comprising: including, in the solution, a material which increases solubility of nitrogen into the solution.

10. (Original) The method as claimed in claim 9, wherein the material is selected from a group consisting of alkaline metals other than the alkaline metal included in the solution.

11. (Original) The method as claimed in claim 9, wherein the material is selected from a group consisting of Li, Ca and alkaline earth metals.

12. (Original) The method as claimed in claim 11, wherein the material is Li, and the Li is included in the solution by adding a nitrogen compound to the solution.

13. (Original) The method as claimed in claim 6, wherein the group III nitride crystal is grown on a seed crystal.

14. (Original) The method as claimed in claim 6, wherein the group III nitride crystal which is grown is plate-shaped or columnar.

15. (Original) A group III nitride crystal grown by a process comprising: growing a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved; and including, in the solution, a material which increases solubility of the nitrogen into the solution, wherein the group III nitride crystal is plate-shaped or columnar.

16. (Original) A group III nitride crystal growing apparatus comprising: a reaction chamber; and a solution container, provided within the reaction chamber, to contain a solution in which an alkaline metal, a group III metal and nitrogen are dissolved, said solution including a material which increases solubility of the nitrogen into the solution, whereby a group III nitride crystal is grown in the solution within the solution container.

17. (Original) The group III nitride crystal growing apparatus as claimed in claim 16, wherein the group III, nitride crystal is grown in the solution within the solution container by fusing a group III nitride into a solvent which includes the alkaline metal and recrystallizing the group III nitride.

18. (Original) A method of growing a group III nitride crystal, comprising: growing a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved; and including, in the solution, a material which controls a ratio of a growth rate of the group III nitride crystal in a first direction approximately parallel to a c-axis thereof and a growth rate of the group III nitride crystal in a second direction approximately perpendicular to the c-axis direction thereof.

19. (Original) The method as claimed in claim 18, wherein the material controls the growth rate of the group III nitride crystal in the second direction to become higher than that in the first direction.

20. (Original) The method as claimed in claim 19, wherein the material is Li.

21. (Original) The method as claimed in claim 18, wherein the material controls the growth rate of the group III nitride crystal in the first direction to become higher than that in the second direction.

22. (Original) The method as claimed in claim 21, wherein the material is selected from a group consisting of Ni, Mn, Fe and Co.

23. (Original) The method as claimed in claim 18, wherein the group III nitride crystal is grown on a principal plane of a plate-shaped seed crystal, and the material controls the growth rate of the group III nitride crystal in a direction approximately parallel to the principal plane to become higher than that in a direction approximately perpendicular to the principal plane.

24. (Original) The method as claimed in claim 23, wherein the seed crystal is made of a plate-shaped group III nitride having a c-plane as the principal plane thereof.

25. (Original) A method of growing a group III nitride crystal, comprising: growing a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved; and including, in the solution, Li which controls a ratio of a growth rate of the group III nitride crystal in a first direction approximately parallel to a c-axis thereof and a growth rate of the group III nitride crystal in a second direction approximately perpendicular to the c-axis direction thereof.

26. (Original) A group III nitride crystal grown by a process comprising: growing a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved; and including, in the solution, a material which controls a ratio of a growth rate of the group III nitride crystal in a first direction approximately parallel to a c-axis thereof and a growth rate of the group III nitride crystal in a second direction approximately perpendicular to the c-axis direction thereof, wherein the group III nitride crystal is plate-shaped or columnar depending on the material.

27. (Original) A group III nitride crystal growing apparatus comprising: a reaction chamber; and a solution container, provided within the reaction chamber, to contain a solution in which an alkaline metal, a group III metal and nitrogen are dissolved, said solution including a material which controls a ratio of a growth rate of the group III nitride crystal in a first direction approximately parallel to a c-axis thereof and a growth rate of the group III nitride crystal in a second direction approximately perpendicular to the c-axis direction thereof, whereby a group III nitride crystal is grown in the solution within the solution container.

28. (Original) The group III nitride crystal growing apparatus as claimed in claim 27, wherein the material is selected to Li which controls the growth rate of the group III nitride crystal in the second direction to become higher than that in the first direction when growing a plate-shaped group III nitride crystal, and the material is selected to a material selected from a group consisting of Ni, Mn, Fe and Co which controls the growth rate of the group III nitride crystal in the first direction to become higher than that in the second direction when growing a columnar group III nitride crystal.

29. (Original) A method of growing a group III nitride crystal, comprising: fusing a group III nitride into a solution including an alkaline metal; and recrystallizing a group III nitride crystal at a location different from a location where the group III nitride is dissolved within the solution.

30. (Original) The method as claimed in claim 29, wherein the solution contacts nitrogen gas.

31. (Original) The method as claimed in claim 29, wherein the group III nitride dissolved into the solution comprises plate-shaped crystals.

32. (Original) The method as claimed in claim 29, wherein the group III nitride dissolved into the solution comprises an approximately stoichiometry composition.

33. (Original) The method as claimed in claim 29, wherein the group III nitride dissolved into the solution comprises group III nitride crystals which are grown from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved.

34. (Original) The method as claimed in claim 29, wherein the group III nitride crystal is grown on a seed crystal.

35. (Original) The method as claimed in claim 29, wherein the location where the group III nitride crystal is recrystallized and the location where the group III nitride is dissolved within the solution have mutually different temperatures.

36. (Original) A group III nitride crystal grown by a process comprising: fusing a group III nitride into a solution including an alkaline metal; and recrystallizing a group III nitride crystal at a location different from a location where the group III nitride is dissolved within the solution.

37. (Original) A group III nitride crystal growing apparatus, comprising: a reaction chamber; and a solution container, provided in the reaction chamber, to contain a group III nitride which is dissolved into a solution including an alkaline metal, whereby a group III nitride crystal is recrystallized at a location within the solution chamber different from a location where the group III nitride is dissolved within the solution.

38. (Original) A method of growing a group III nitride crystal, comprising: forming, within a reaction chamber, a molten mixture of an alkaline metal and a material which includes a group III metal; growing a group III nitride crystal which is made of the group III metal and nitrogen, from the molten mixture and a material which includes the nitrogen; and controlling a temperature in a vicinity of a surface of the molten mixture and a temperature of a crystal growing region within the molten mixture, so that the nitrogen dissolves into the molten mixture from the surface and the group III nitride crystal grows in the crystal growing region which is other than the surface.

39. (Original) The method as claimed in claim 38, comprising: filling a space within the reaction chamber by the material which includes the nitrogen and in a gaseous state; and controlling a pressure within the reaction chamber so that a partial pressure of the material which includes the nitrogen and is in the gaseous state generates no nucleus of the group III nitride in the vicinity of the surface in response to a temperature change at the surface.

40. (Original) The method as claimed in claim 38, wherein the temperature in.the vicinity of the surface is controlled to a temperature which is higher than the temperature of the crystal growing region.

41. (Original) The method as claimed in claim 40, comprising: setting a seed crystal in the crystal growing region; and controlling the temperature and a pressure in the crystal growing region, so that the group III nitride crystal grows on the seed crystal.

42. (Original) The method as claimed in claim 40, comprising: controlling the temperature and a pressure in the crystal growing region, so that a columnar group III nitride crystal grows in the crystal growing region.

43. (Original) The method as claimed in claim 40, comprising: controlling the temperature and a pressure in the crystal growing region, so that a plate-shaped group III nitride crystal grows in the crystal growing region.

44. (Original) The method as claimed in claim 40, wherein the crystal growing region is located in a lower portion of the reaction chamber.

45. (Original) The method as claimed in claim 38, wherein the temperature in the vicinity of the surface and the temperature of the crystal growing region are controlled to approximately same temperature.

46. (Original) The method as claimed in claim 38, wherein the temperature in the vicinity of the surface is controlled to a temperature which is lower than a temperature at a lower portion of the molten mixture within the reaction chamber.

47. (Original) A group III nitride crystal grown by a process comprising: forming, within a reaction chamber, a molten mixture of an alkaline metal and a material which includes a group III metal; growing a group III nitride crystal which is made of the group III metal and nitrogen, from the molten mixture and a material which includes the nitrogen; and controlling a temperature in a vicinity of a surface of the molten mixture and a temperature of a crystal growing region within the molten mixture, so that the nitrogen dissolves into the molten mixture from the surface and the group III nitride crystal grows in the crystal growing region which is other than the surface.

48. (Original) A group III nitride crystal growing apparatus comprising: a reaction chamber; a solution container, provided within the reaction chamber, to contain a molten mixture of an alkaline metal and a material which includes a group III metal, so that a group III nitride crystal which is made of the group III metal and nitrogen is grown from the molten mixture and a material which includes the nitrogen; and means for controlling a temperature in a vicinity of a surface of the molten mixture and a temperature of a crystal growing region within the molten mixture, so that the nitrogen dissolves into the molten mixture from the surface and the group III nitride crystal grows in the crystal growing region which is other than the surface.

49. (Currently amended) A semiconductor device comprising: a substrate made of a group III nitride; and a stacked structure provided on the substrate, said stacked structure being selected from a group consisting of a light emitting structure, a light receiving structure and a transistor structure, said substrate being made by the method of growing a group III nitride crystal according to any of claims 1, 6, 18[[,]] and 25~~, 29 and 38~~.